

WHAT IS CLAIMED IS:

1. A method of exposure for irradiating exposure light on a plurality of master masks formed by dividing an enlarged pattern of a transfer pattern, reducing a pattern image for each master mask, and transferring the reduced images onto a mask substrate on which the transfer pattern is to be formed,

said method of exposure comprising detecting deformation information of the mask substrate corresponding to a transfer position of the pattern image and adjusting at least one of (i) a relative positional relationship between the pattern image and the mask substrate at the time of transfer of the pattern image and (ii) projection characteristics of the pattern image based on the deformation information.

2. A method according to claim 1, further comprising detecting identification information formed on the master mask to obtain the deformation information of the mask substrate.

3. A method according to claim 1, wherein the projection characteristics of the pattern image include optical characteristics of a projection optical system for projecting the pattern image.

4. A method according to claim 1, further comprising supporting the mask substrate at a plurality of points without chucking and wherein the deformation information includes information relating to flexing of the mask substrate by its own weight.

5. A method according to claim 1, wherein an amount of exposure of the mask substrate is changed in accordance with a change amount of a line width of the pattern image for each of the master masks.

6. An exposure apparatus provided with an illumination system for irradiating illumination light to a plurality of master masks formed by dividing an enlarged pattern of a transfer pattern, and a projection optical system for reducing a pattern image for each master mask and projecting the pattern image onto a mask substrate on which the transfer pattern is to be formed, the exposure apparatus comprising:

a detection device which detects deformation information of the mask substrate in accordance with a transfer position of the pattern image; and

an adjustment device which adjusts at least one of (i) a relative positional relationship between the pattern image and the mask substrate and (ii) projection characteristics of the pattern image at the time of transfer of the pattern image based on the deformation information.

7. An apparatus according to claim 6, further comprising a stage which supports the substrate at a plurality of points without chucking.

8. A method for transfer of a pattern onto a substrate by exposing the substrate by illumination light through a mask formed with the pattern, the method of exposure comprising:

supporting the substrate at a plurality of points without chucking and adjusting at least one of (i) a relative positional relationship between the pattern and the substrate and (ii) transfer conditions of the pattern at the time of transfer of the pattern based on information relating to flexing of the substrate by its own weight corresponding to the transfer position of the pattern on the substrate.

9. A method according to claim 8, wherein the transfer conditions of the pattern include imaging characteristics of a projection optical system for forming a

projected image of the pattern on the substrate.

10. A method according to claim 8, wherein the pattern is divided into more than one part to be formed as a different mask, and an amount of exposure of the substrate is changed in accordance with a change amount of a line width of the pattern image at the time of transferring the pattern image onto the substrate for each of the masks.

11. A method according to claim 10, wherein the substrate becomes a working mask to be used in an exposure apparatus for device production and an optical type reduction projection exposure apparatus is used for transferring the pattern image.

12. An exposure apparatus for transferring a pattern to a substrate by exposing the substrate by illumination light through a mask formed with the pattern, the exposure apparatus comprising:

a stage which supports the substrate at a plurality of points without chucking; and

an adjustment device which adjusts at least one of (i) a relative positional relationship between the pattern and the substrate and (ii) transfer conditions of the pattern at the time of transfer of the pattern based on information relating to flexing of the substrate by its own weight corresponding to the transfer position of the pattern on the substrate.

13. An exposure apparatus which transfers a pattern of a mask to a substrate, comprising:

a moving unit on which the substrate is placed, the moving unit having three support portions for supporting the substrate, which contact with a

second plane of the substrate different from a first plane on which the pattern is to be transferred; and

a correction device which corrects a transfer error of the pattern which is caused by supporting the substrate on the three support portions based on deformation information of the substrate by its own weight.

14. An apparatus according to claim 13, wherein the correction device adjusts, for correcting the transfer error, at least one of (i) a relative positional relationship between the pattern and the substrate and (ii) a transfer condition of the pattern.

10 15. An apparatus according to claim 13, wherein chucking power by suction to the substrate on the moving unit is set to substantially zero.